

REMARKS

Status of the claims

Claims 1-52 are pending and claims 1-3, 7-9, 32 and 33 are under consideration in this application, claims 4-6, 10-31, and 34-52 having been withdrawn as allegedly being drawn to separate inventions. All the claims under consideration stand rejected. After entry of the amendments made herein, claims 1-3, 7-9, 32, 33, and 53-58 will be under consideration, claims 53-58 having been newly added herein. Claim 53 is supported by the specification, e.g., at page 14, line 27. Claim 2 has been put in independent form and amended to specify a specific length of polypeptide encoded by the claimed nucleic acid and new claims 54-58 specifying various lengths of polypeptide have been added. This amendment to claim 2 and new claims 54-58 are supported by the specification, e.g., at page 2, line 3, to page 3, line 4, and page 12, lines 23-25. No new matter is added by the amendment to claim 2 or new claims 53-58.

Telephone conversation with the Examiner

Applicant thanks the Examiner for her courtesy and helpfulness in a telephone conversation with Applicant's undersigned representative on August 4, 2003.

Amendments to the specification

As requested on page 2, paragraphs 5 and 6, of the Office Action, Applicant has amended the title of the application to be more descriptive of the presently claimed invention and to delete the term "novel". The amendments to the title are supported throughout the specification, e.g., at page 1, lines 7-8, and lines 24-25.

As requested on page 2, paragraph 8, of the Office Action, the embedded hyperlink on page 14, lines 13-14, has been deleted.

35 U.S.C. § 112 rejections

(a) Claims 1-3, 7-9, and 32-33 stand rejected as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter, which Applicant regards as the invention.

As suggested on page 3, paragraph 11A of the Office Action, Applicant has replaced the term "with" in the phrase "sequence with SEQ ID NO:X" in both claims 1 and 2 with the term "set forth in". For consistency, the term "of" in the phrase "of SEQ ID NO:6" in claim 3 has similarly been replaced with the term "set forth in". In the interest of even further clarity, claim 3 has been amended by replacing the term "has" with the term "comprises" and the term "sequence" has been replaced with the term "nucleotide sequence". These amendments are supported by the specification, e.g., at page 2, lines 3-18, and add no new matter.

As requested on page 3, paragraph 11B, of the Office Action, the term "under stringent conditions" has been deleted. It has been replaced with the term "after a wash at 50°C to 65°C in a buffer containing 0.2 x SSC and 0.1% SDS". This amendment is supported by the specification, e.g., at page 14, line 27, and adds no new matter.

(b) Claims 1-3, 7-9, and 32-33 stand rejected on the grounds that: (1) the specification allegedly does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims; and (2) they allegedly contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, has possession of the claimed invention.

From the comments on page 4, line 19, to page 6, line 37, of the Office Action, Applicant understands the Examiner's position to be that the invention embodied by the instant claims is not enabled by the specification and/or not supported by written description in the specification in view of the following factors:

(i) the use of the term "hybridizes under stringent conditions" is indefinite (see above) and it thus it would take undue effort for one skilled in the art to establish what is encompassed by the instant claims;

(ii) the "target" nucleic acid to which an isolated DNA is required to hybridize by claim 1 is specified in terms of the protein sequence it encodes (rather than its nucleotide sequence) and thus the claim covers an excessively large number of undefined DNAs; and

(iii) the use of the terms "with" and "of" in reference to sequence identifiers results in the inclusion within the scope of the claims of DNAs that hybridize to: (a) undefined nucleotide

sequences flanking that specified by the sequence identifiers; and (b) nucleotide sequences encoding a wide range of undefined B7-H4 polypeptide fragments.

While not necessarily agreeing with this position, in the interest of expediting prosecution of the instant application, Applicant has: (i) specifically defined the hybridization conditions referred to in claim 1 (see above); (ii) amended claim 1 to specify, as the "target" sequence to which the claimed DNAs must hybridize, the nucleotide sequence set forth in SEQ ID NO:6 (rather than a nucleotide sequence encoding a polypeptide with the amino acid sequence set forth in SEQ ID NO:5) and (iii) as indicated above, replaced the terms "with" and "of" in claims 1-3 with the term "as set forth in".

By making these amendments, Applicant respectfully submits that the claims are now within the scope stated in the Office Action to be enabled by the specification (Office Action, page 4, lines 7-14). Moreover, Applicant submits that the claim 1 has scope analogous to that of the claim stated in Example 9 of the "Guidelines for the Examination of Patent Applications Under the 35 U.S.C. § 112, ¶ 1, Written Description Requirement" to be allowable in view of written description equivalent to that of the instant specification.

In light of the above considerations, Applicants request withdrawal of the rejections under 35 U.S.C. § 112.

35 U.S.C. § 102 rejections

Claims 1-3, 7-9, and 32-33 stand rejected as allegedly being anticipated: (1) under § 102(a) by Baker et al.; (2) under § 102(e) by Mitcham et al.; and (3) under § 102(e) by Fox et al. Applicant respectfully traverses these rejections.

In the telephone conversation with Applicant's undersigned representative on August 4, 2003, the Examiner indicated that SEQ ID NO:391 and SEQ ID NO:393 in Mitcham et al. have only the filing date of Mitcham et al. (September 24, 1999) as their priority date.

In view of the enclosed declaration of Applicant (Exhibit A), Dr. Lieping Chen, Applicant respectfully submits that none of Baker et al., Mitcham et al., or Fox et al. are prior art with respect to the instant application and thus requests that the rejections under 35 U.S.C. § 102 be withdrawn.

CONCLUSIONS

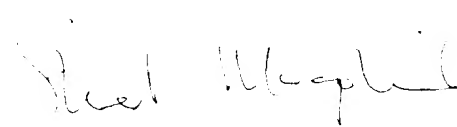
Applicant submits that the pending claims patentably define the invention. Applicant requests that the Examiner reconsider the rejections set forth in the Office Action, and permit the pending claims to pass to allowance.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's undersigned representative can be reached at the telephone number listed below.

Enclosed is a Request for an Automatic Extension of Time and check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 07039-219001.

Respectfully submitted,

Date: 8/5/03



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B7.6DNA Translated Sequence

BamHI
HindIII
NotI
PvuII
SmaI

Page 1

Sequence Range: 1 to 1369

10 20 30 40 50 60 70
CAGCGGCAGCTCCACTCAGCCAGTACCCAGATACGCTGGGAACCTTCCCCAGCAGCTTCCCTGGGGC
GTCGCCGTCGAGGTGAGTCCGGTCATGGGTCTATGCGACCCCTTGGAGGGGTCCGTACCGAAGGGACCCCG
Q R Q L H S A S T Q I R W E P S P A M A S L G>
TRANSLATION OF B7.6DNA [A]>

80 90 100 110 120 130 140
AGATCCTCTTCTGGAGCATAATTAGCATCATCATTATCTGGCTGGAGCAATTGCACTCATCATTGGCTT
TCTAGGAGAAGACCTCGTATTAATCGTAGTAGTAATAAGACCGACCTCGTTAACGTGAGTAGTAACCGAA
Q I L F W S I I S I I I I L A G A I A L I I G F>
TRANSLATION OF B7.6DNA [A]>

150 160 170 180 190 200 210
TGGTATTTCCGGGACACTCCATCACAGTCACTACTGTCCGCTCAGCTGGGAACATTGGGGAGGATGGA
ACCATAAAGTCCCTCTGTGAGGTAGTGTCACTGATGACAGCGGAGTCCGACCCTTGTAACCCCTCTACCT
G I S G R H S I T V T T V A S A G N I G E D G>
TRANSLATION OF B7.6DNA [A]>

220 230 240 250 260 270 280
ATCTTGAGCTGCACTTTTGAACCTGACATCAAACTTTCTGATATCGTGATACAATGGCTGAAGGAAGGTG
TAGTAATCGACGTGAAAACCTTGGACTGTAGTTTGAAGACTATAGCACTATGTTACCGACTTCCTTCCAC
I L S C T F E P D I K L S D I V I Q W L K E G>
TRANSLATION OF B7.6DNA [A]>

290 300 310 320 330 340 350
TTTTAGGCTTGGTCCATGAGTTCAAAGAAGGCAAAGATGAGCTGTCCGAGCAGGATGAAATGTTTCAGAGG
AAAATCCGAACCAGGTACTCAAGTTTCTCCGTTTCTACTCGACAGCCTCGTCCCTACTTTACAAGTCTCC
V L G L V H E F K E G K D E L S E Q D E M F R G>
TRANSLATION OF B7.6DNA [A]>

360 370 380 390 400 410 420
CCGGACAGCAGTGTGCTGATCAAGTGATAGTTGGCAATGCCTCTTTGCCGCTGAAAAACGTGCAACTC
GGCTGTGCTCACAACGACTAGTTCACTATCAACCGTTACGGAGAAACGCCGACTTTTTCACGTTGAG
R T A V F A D Q V I V G N A S L R L K N V Q L>
TRANSLATION OF B7.6DNA [A]>

430 440 450 460 470 480 490
ACAGATGCTGGCAGCTACAAATGTTATATCATCACTTCTAAAGGCAAGGGGAATGCTAACCTTGAGTATA
TGCTACGACCGTGATGTTTACAATATAGTAGTGAAGATTTCCGTTCCCTTACGATTGGAACCTCATAT
T D A G T Y K C Y I I T S K G K G N A N L E Y>
TRANSLATION OF B7.6DNA [A]>

500 510 520 530 540 550 560
AAATCGGACCTTCAGCATGCCGGAAGTGAATGTGGACTATAATGCCAGCTCAGAGACCTTGCGGTGTGA
TTTGACCTCGGAAGTCGTACGGCCTTCACTTACACCTGATATTACGGTCGAGTCTCTGGAACGCCCACT
K T G A F S M P E V N V D Y N A S S E T L R C E>
TRANSLATION OF B7.6DNA [A]>

570 580 590 600 610 620 630
GGCTCCCGATGGTTCCCCAGCCACAGTGGTCTGGGCATCCCAAGTTGACCAGGGAGCCAACTTCTCG
CCGAGGGGCTACCAAGGGGTCCGGTGTACACAGACCCGTAGGGTTCAACTGGTCCCTCGGTGAAGAGC
A P R W F P Q P T V V W A S Q V D Q G A N F S>
TRANSLATION OF B7.6DNA [A]>

640 650 660 670 680 690 700

K2 Ak
S2 Ak
A/6 MAF 6

K_R2

GAAGTCTCCAATACCAGCTTTGAGCTGAAGTCTGAGAATGTGACCATGAAGGTTGTCTGTGCTCTACA
 CTTCAGAGGTTATGGTTCGAAACTCGACTTGAGACTCTTACACTGGTACTTCCAACACAGACACGAGATGT
 E V S N T S F E L N S E N V T M K V V S V L Y>

TRANSLATION OF B7.6DNA [A]

710 720 730 740 750 760 770
 ATGTTACGATCAACAACACATACTCCTGTATGATTGAAAATGACATTGCCAAAGCAACAGGGGATATCAA
 TACAATGCTAGTTGTTGTGTATGAGGACATACTAATTTTACTGTAACGGTTTCGTTGTCCCTTATAGTT
 N V T I N N T Y S C M I E N D I A K A T G D I K>

TRANSLATION OF B7.6DNA [A]

780 790 800 810 820 830 840
 AGTGACAGAATCGGAGATCAAAAGCGGAGTCACTACAGCTGCTAAACTCAAGGCTTCTCTGTGTGTC
 TCACTGTCTTAGCCTCTAGTTTTCCGCCTCAGTGGATGTCGACGATTTGAGTTTCCGACAGACACACAG
 V T E S E I K R R S H L Q L L N S K A S L C V>

TRANSLATION OF B7.6DNA [A]

850 860 870 880 890 900 910
 TCTTCTTTCTTTGCCATCAGCTGGGCACTTCTGCCTCTCAGCCCTTACCTGATGCTAAAATAATGTGCCT
 AGAAGAAAGAAACGGTAGTCGACCCGTGAAGACGGAGAGTCGGGAATGGACTACGATTTTATTACACGGA
 S S F F A I S W A L L P L S P Y L M L K C A>

TRANSLATION OF B7.6DNA [A]

920 930 940 950 960 970 980
 TGGCCACAAAAAGCATGCAAAGTCATTGTTACAACAGGGATCTACAGAACTATTTACCACCAGATATG
 ACCGGTGTTTTTCGTACGTTTTCAGTAACAATGTTGTCCCTAGATGTCTTGATAAAGTGGTGGTCTATAC
 L A T K K H A K S L L Q Q G S T E L F H H Q I >

TRANSLATION OF B7.6DNA [A]

990 1000 1010 1020 1030 1040 1050
 ACCTAGTTTATATTTCTGGGAGGAAATGAATTCATATCTAGAAGTCTGGAGTGAGCAACAAGAGCAAG
 TGGATCAAAATATAAAGACCCCTCCTTTACTTAAGTATAGATCTTCAGACCTCACTCGTTTGTCTCGTTC
 P S F I F L G G N E F I S R S L E * A N K S K>

TRANSLATION OF B7.6DNA [A]

1060 1070 1080 1090 1100 1110 1120
 AAACAAAAAGAGCCAAAAGCAGAAGGCTCCAATATGAACAAGATAAATCTATCTTCAAGACATATTAG
 TTTGTTTTCCTTCGGTTTTTCGTCTTCCGAGGTTATACTTGTCTATTAGATAGAAGTTTCTGTATAATC
 K Q K E A K S R R L Q Y E Q D K S I F K D I L>

TRANSLATION OF B7.6DNA [A]

1130 1140 1150 1160 1170 1180 1190
 AAGTTCCGAAATAATTCATGTGAAGTACAGCAAGTGTGTTAAGAGTGATAAGTAAATGCACGTGGAGAC
 TTCAACCCCTTTTATTAAGTACACTTGATCTGTTACACAAATTCCTACTATTTCATTTACGTGCACCTCTG
 E V G K I I H V N * T S V L R V I S K M H V E T>

TRANSLATION OF B7.6DNA [A]

1200 1210 1220 1230 1240 1250 1260
 AAGTGCATCCCCAGATCTCAGGGACCTCCCCCTGCCTGTACCTGGGGAGTGAGAGGACAGGATAGTGCA
 TTCACGTAGGGGTCTAGAGTCCCTGGAGGGGACGGACAGTGGACCCCTCACTCTCCTGTCTATCACGT
 S A S P D L R D L P L P V T W G V R G Q D S A>

TRANSLATION OF B7.6DNA [A]

1270 1280 1290 1300 1310 1320 1330
 TGTCTTTGTCTCTGAATTTTGTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGCCCCCTGGAAAGTCTA
 ACAAGAAACAGAGACTTAAAAATCAATATACACGACATTACAACGAGACTCCTTCGGGGACCTTTTCAGAT
 C S L S L N F * L Y V L * C C S E E A P G K S>

TRANSLATION OF B7.6DNA [A] _____>

1340 1350 1360
TCCCAACATATCCACATCTTATATTCCACAAATTAAGCT
AGGGTTGTATAGGTGTAGAAATATAAGGTGTTTAATTCTGA
I P T Y P H L I F H K L S X>

TRANSLATION OF B7.6DNA [A] _____>



Attorney's Docket No.: 07039-219001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Lieping Chen

Art Unit : 1644

Serial No. : 09/915,789

Examiner : Jessica H. Roark

Filed : July 26, 2001

Title : B7-H3 AND B7-H4, NOVEL IMMUNOREGULATORY MOLECULES

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

DECLARATION OF INVENTOR UNDER 37 C.F.R. § 1.131

I, the inventor, declare that:

1. I am the inventor of claims 1-3, 7-9, 32-33, and 53-58 of the above-captioned patent application, as well as the inventor of the subject matter related to these claims described therein.

2. Prior to September, 1999, I worked in this country to complete the conception of the invention, as claimed in the application, and to reduce the invention to practice, as evidenced by the following:

A copy of a computer printout generated in my laboratory prior to September, 1999, is attached as Exhibit B. The computer printout shows a nucleic acid sequence derived from the nucleotide sequences of a series of overlapping cDNA clones. The nucleic acid sequence includes the nucleotide sequence encoding the full-length human B7-H4 polypeptide. The date of generation of the computer printout has been blocked out on all three pages of the computer printout but was before September, 1999.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date of Deposit

August 5, 2003

Signature

Malinda

GINA MALDONADO

Typed or Printed Name of Person Signing Certificate

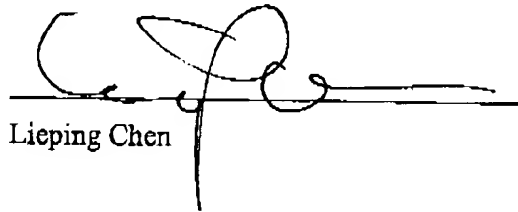
Applicant : Lieping Chen
Serial No. : 09/915,789
Filed : July 26, 2001
Page : 2 of 2

Attorney's Docket No.: 07039-219001

3. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

8/4/03


Lieping Chen